



9.1 WASHINGTON COUNTY

This section presents the jurisdictional annex for Washington County.

9.1.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Glen Gosnell; Director of Public Safety Washington County Department of Public Safety 383 Broadway, Fort Edwards 518-747-7520 ggosnell@co.washington.ny.us	Timothy Hardy, Deputy Director Washington County Department of Public Safety 383 Broadway, Fort Edwards 518-747-7520 thardy@co.washington.ny.us

9.1.2 County Profile

Please refer to Section 4 – County Profile of this Plan for details on Washington County’s population, location, climate, history, growth and development.

9.1.3 Natural Hazard Event History Specific to the County

Warren County has a history of hazard events as detailed in Section 5.0 – Risk Assessment of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

9.1.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 – Risk Assessment of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the County. For additional vulnerability information, refer to Section 5.0 – Risk Assessment.

Natural Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Washington County.

Table 9.1-1. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Earthquake	100-Year GBS: \$0	Occasional	28	Medium
	500-Year GBS: \$14,923,812			
	2,500-Year GBS: \$235,483,840			
Flood	Damage estimate not available.	Frequent	27	Medium
Severe Weather	100-Year MRP: \$6,432,989	Frequent	48	High
	500-year MRP: \$46,529,142			
	Annualized: \$378,623			
Severe Winter Weather	1% GBS: \$183,163,184	Frequent	51	High



Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
	5% GBS: \$915,815,918			
Wildfire	Estimated Value in the WUI Hazard Areas: \$23,813,014,227	Frequent	48	High

Notes:

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
- b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.
High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
- c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
- d. Loss estimates for the flood and earthquake hazards represent both structure and contents.
- e. The HAZUS-MH earthquake model results are reported by Census Tract.
- f. Damage estimate for flood unavailable due to lack of digital floodplain data for Washington County.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the County.

Table 9.1-2. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)
Washington County	160	98	\$1,435,133	2	0

Source: FEMA, 2016

- Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of April 30, 2016 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 4/30/2016.
- Note (2) Total building and content losses from the claims file provided by FEMA Region 2.
- Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.
- Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility

Other Vulnerabilities Identified

Washington County has identified the following vulnerabilities within the County:

- None identified

9.1.5 Capability Assessment

This section identifies the following capabilities of the County:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the County.





Table 9.1-3. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Authority (local, county, state, federal)	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	State and Local	Washington County Department of Code Enforcement; also regulated at local and state levels
Zoning Ordinance	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Subdivision Ordinance	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Site Plan Review Requirements	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
National Flood Insurance Program (NFIP) Flood Damage Protection Ordinance	Federal, State, Local	The County currently has no regulatory authority in this area.
Comprehensive Plan / Master Plan	County and Local	Washington County Empire Zone Development Plan (March 2008); Washington County Agricultural and Farmland Protection Plan (2016)
Capital Improvements Plan	County	Washington County Capital Improvement Plan for 2018—2022 (December 2017); Washington County Capital Equipment and Technology Plan for 2018-2022 (January 2018)
Stormwater Management Plan/Ordinance	County, Local	Washington County Stormwater Pollution Prevention Plan (June 2013); Washington County DPW is a “Regulated Small MS4” community, and maintains a county-level SWMP with annual reporting
Floodplain Management / Basin Plan	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Open Space or Greenway Plan	County	Open Space Acquisition Program
Emergency Management and/or Response Plan	County and Local	Washington County Comprehensive Emergency Management Plan (April 2016)
Economic Development Plan	County	Existing Conditions Report: Broadband and Telecommunications (October 2015); Washington County Economic Development magazine
Local Waterfront Revitalization Plan (for waterfront communities)	Local	Regulated at the local level; however, the County provides code enforcement and land use planning support to municipalities
Post Disaster Recovery Plan and/or Ordinance	County	Washington County Comprehensive Emergency Management Plan (April 2016)
Growth Management	Local	
Real Estate Disclosure req.	State and local	New York State (NYS) mandate, Property Condition Disclosure Act, <i>NY Code</i> – Article 14 §460-467
Habitat Conservation Plan	-	-
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the County.





Table 9.1-4. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	County Planning
Mitigation Planning Committee	Yes	Established for this HMP update effort
Environmental Board/Commission	No	
Open Space Board/Committee	Yes	Ag/Farmland Protection Committee
Economic Development Commission/Committee	Yes	Local Development Corporation; Ag/Planning/Tourism Committee
Maintenance Programs to Reduce Risk	Yes	County DPW has ongoing programs to address both maintenance and mitigation of vulnerabilities to road, bridge, stormwater and other drainage infrastructure throughout the County, and provides support to municipalities similarly.
Mutual Aid Agreements	Yes	State controlled
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Planning; Code Enforcement; Public Works; SWCD
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Code Enforcement; Public Works
Planners or engineers with an understanding of natural hazards	Yes	Public Works – Engineering; Planning; SWCD
NFIP Floodplain Administrator	N/A	Per NYS Coordinator of NFIP Floodplain Mgr. not applicable on County level as requirement and jurisdiction is with Towns and Villages
Surveyor(s)	No	County may use outside contractors; Real Property
Personnel skilled or trained in GIS and/or HAZUS-MH applications	Yes	Real Property; County
Scientist familiar with natural hazards	Yes	SWCD and County
Emergency Manager	Yes	Public Safety
Grant Writer(s)	Yes	Public Safety; Planning; Economic Development
Staff with expertise or training in benefit/cost analysis	Yes	Economic Development
Professionals trained in conducting damage assessments	Yes	Public Safety

Fiscal Capability

The table below summarizes financial resources available to the County.

Table 9.1-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	No
User fees for water, sewer, gas or electric service	No
Impact Fees for homebuyers or developers of new development/homes	No
Stormwater Utility Fee	No





Financial Resources	Accessible or Eligible to Use (Yes/No)
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	Yes
Open Space Acquisition Funding Programs	Yes
Other	Economic Development Loan Program U.S. HUD HOME Investment Partnerships U.S. HUD Emergency Solutions Grant Department of Homeland Security grants

Community Classifications

The table below summarizes classifications for community program available to the County.

Table 9.1-6. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	N/A	N/A	Not applicable at the County level
Building Code Effectiveness Grading Schedule (BCEGS)	N/A	N/A	Not applicable at the County level
Public Protection (ISO Fire Protection Classes 1 to 10)	N/A	N/A	Not applicable at the County level
Storm Ready	No	Washington County is currently a Weather Ready county and is working towards becoming a StormReady county.	
Firewise	No		
Disaster/Safety Programs in/for Schools	No		
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	Yes	Use of social media and County website to identify seasonal-specific safety issues. Additional programs identified throughout this annex and plan	
Public-Private Partnerships	No		

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:





- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule website at <https://www.isomitigation.com/bcegs/>
- The ISO Mitigation online ISO’s Public Protection website at <https://www.isomitigation.com/ppc/>
- The National Weather Service Storm Ready website at <https://www.weather.gov/stormready/>
- The National Firewise Communities website at <https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA>

Self-Assessment of Capability

The table below provides an approximate measure of Washington County’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.1-7. Self-Assessment Capability for the County

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability		X - Limited staff availability as well as proper training for mitigation specific planning and coordination.	
Administrative and Technical Capability	X - Limited staff availability as well as proper training for mitigation specific planning and coordination.		
Fiscal Capability	X - Fiscal constraints for all jurisdictional and ability to fund projects or planning		
Community Political Capability		X - Difficult to get the political jurisdictions to work towards prevention of something that has not happened and is not seen as a priority in the list of items for fiscal subsets.	
Community Resiliency Capability		X – Transportation, connectivity, distance, limited staff, unaware of FEMA funding sources.	
Capability to Integrate Mitigation into Municipal Processes and Activities.		X	

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

It is the intention of the County to incorporate hazard mitigation planning and natural hazard risk reduction as an integral component of the County’s administrative, regulatory and operational framework. Such efforts which are now an ongoing part of County operations are identified in the Capability Assessment of Section 6 – Mitigation Strategy, as well as in the completed mitigation initiatives identified in the following Section 9.1.6. In addition, the County identified specific integration activities that will be incorporated into procedures and are included in their updated mitigation strategy. The following textual summary and table identify relevant planning mechanisms and programs that have been/will be incorporated into County procedures, which may include former mitigation initiatives that have become continuous/on-going programs and may be considered mitigation “capabilities”:





Planning

Municipal Land Use Planning and Regulatory Authority

The County and municipalities have various land use planning mechanisms that can be leveraged to mitigate flooding and support natural hazard risk reduction. Specific County and local planning and regulatory capabilities are identified in their jurisdictional annexes in Section 9. The Washington County Planning Department (WCPD), Washington County Department of Code Enforcement (WCDCE) and the Washington County Soil and Water Conservation District (WCSWCD) both provide local land use planning support to the municipalities (see Section 6.4.3).

Section 239 of New York State General Municipal Law (GML) requires the referral of certain local planning actions to the County Planning Board for the examination of possible inter-municipal impacts. The County Planning Department and Planning Board fulfil the requirements under Section 239-M of the law. While WCPD does not have or implement any County-level land use plans, it does provide technical planning assistance for all municipalities within the County. The County Planning Board reviews all aspects of the projects referred to them and often discusses natural hazard risks regarding floodplains as well as stormwater management. A recently hired County Planner specializes in Resiliency and Community Development, and serves as a resource to the Planning Board and municipalities. The Board makes recommendations on local projects to approve, deny, or find matter of local concern – it does not have the authority to make determinations. Municipalities consider County recommendations, but may vote against them a super-majority vote. All municipalities within the County have some form of land use regulations.

WCDCE administers and enforces the New York State Uniform Fire Prevention and Building Codes and the Washington County Sanitary Code, Local Law No. 1 of 1988 within those municipalities within the county which have elected not to enforce the Uniform Code at a local level. In this role, the Department is responsible for the following:

- Investigate reports regarding any issues of noncompliance with either the Uniform Codes or Sanitary Code and issue stop work orders and/or order to remedy violations.
- Issue certificates of occupancy and/or certificates of compliance when compliance with the Uniform Codes and/or Sanitary Code has been fulfilled.
- Perform fire prevention inspections of business and schools as required by the Uniform Codes.
- Perform onsite inspections during various stages of construction.
- Perform property maintenance inspections by request of homeowners and/or tenants.
- Review plans and issue permits for all work that must conform to the Uniform Codes and the Washington County Sanitary Code.

WCDCE staff includes code enforcement officials assigned to specific municipalities within the county where local code enforcement is unavailable. The towns of Putnam, Easton, Cambridge, and Fort Edward conduct building code enforcement with local staff. All other towns and villages in the county rely on WCDCE for building code enforcement. In addition, each town and village has authorized local municipal officers who ensure compliance with any and all local regulations in the municipality that a permit or certificate is being requested.

Local Waterfront Revitalization Program

The Waterfront Revitalization of Coastal Areas and Inland Waterways Act offers local governments the opportunity to participate in the State's Coastal Management Program (CMP), on a voluntary basis, by preparing and adopting a Local Waterfront Revitalization Program (LWRP), providing more detailed



implementation of the State's CMP through use of such existing broad powers as zoning and site plan review (NYS Department of State 2017).

Some Washington County communities have utilized these funds to increase public access to waterways, design and construct the waterfront parks, and develop riverfront revitalization strategies. The Town of Fort Edward, Village of Fort Edward, and the Village of Granville have been past recipients of the EPF LWRP grant awards. The Village of Whitehall is currently the only Washington County municipality with an approved LWRP.

Regulatory and Enforcement (Ordinances)

Washington County Department of Code Enforcement (WCDCE)

This department enforces the New York State Uniform Fire Prevention and Building Codes and the Washington County Sanitary Code, Local Law No. 1 of 1988. Code Enforcement personnel are available 24 hours a day to report to the scene of an emergency involving structural damage to a building by fire, flood, etc.

Operation and Administration

Washington County Department of Public Safety

The Washington County DPS has multiple different functions, including operating a 911 communications center, maintaining the countywide emergency communications system, overseeing the County's Hazardous Materials-WMD Team and responses, providing administrative support to the Bureau of EMS and Bureau of Fire, maintaining and managing the Public Emergency Notification System, and conducting all Emergency Management Coordination and Planning in the County. The Department's Director and Deputy Director are responsible for Emergency Management and Planning in accordance with State and Federal guidelines for such situations from the County level down to the individual municipalities. The Department assists County Administration as well as the leaders of the local Towns & Villages, Schools and Businesses, also including the assorted Public Safety agencies that have jurisdiction within Washington County.

Washington County Soil & Water Conservation District (WC SWCD)

The District's mission is to implement projects and programs to assist agricultural producers, rural landowners and municipalities with the management, conservation and best use of natural resources in Washington County. The SWCD was created in 1945 to develop and carry out a program of soil, water and related natural resource conservation by providing technical assistance and programs to residents, landowners and units of government. Environmental planners and other WCDP staff provide support to the five-member citizen Board of Directors. The SWCD's highest priorities are to protect the County's soil and water resources while maintaining the viability of agriculture as a preferred land use.

Washington County Department of Public Health and Nursing

Washington County has joined forces with New York State Department of Health, creating a Public Health All-Hazards Volunteer Program. This program will train volunteers to assist Public Health efforts in response, mitigation, and recovery for disasters which may pose a threat to human health.

Washington County Department of Public Works (WCDPW)

WCDPW responsibilities include overseeing all county road, highway, and bridge design and construction, and maintenance of the county's capital facilities, vehicle fleet, and equipment. The department also performs brush cutting, ditching, and tree removals. Washington County DPW has an Engineering Section that is



involved in various activities related to the improvement of highway and bridge infrastructure throughout the County, which includes a Plan of Action for Scour Critical Bridges.

Funding

Washington County municipalities are able to fund mitigation projects through existing local budgets, local appropriations (including referendums and bonding), and through a variety of federal and state loan and grant programs. Many municipalities noted throughout the planning process that they are faced with increasing fiscal constraints, including decreasing revenues, budget constraints and tax caps. In an effort to overcome these fiscal challenges, municipalities have continued to leverage the sharing of resources and combining available funding with grants and other sources, and note that plans and inter-municipal cooperation are beneficial in obtaining grants.

Education and Outreach

Washington County provides public education and outreach information on their website, Facebook page, and Twitter account. This includes news information, links to different county departments, and an events calendar. Additionally, the County Department of Public Safety provides education information and other public outreach mechanisms/programs in place to inform citizens on natural hazards (Facebook, Twitter, NY Alert, and MyEM App). The County Department of Public Safety also works with the Governor's Citizens Preparedness Corps sponsoring Citizen Preparedness Corps training sessions throughout Washington County during the year.

9.1.6 Mitigation Strategy and Prioritization

This section discusses past mitigation actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the County's mitigation strategy identified in the 2010 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.



Table 9.1-8. Status of Previous Mitigation Actions

2010 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2018 HMP or Discontinue)	Describe Next Step
Improve drainage at sites where roads have washed out due to natural hazards in the past throughout County	County	In progress	Drainage improvements have been made throughout the County; however, there is a need to continue the improvements in other areas of the County.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Purchase equipment to provide for local personnel to conduct the drainage improvement throughout County	County	In progress	Equipment has been purchased; however, there is a need to purchase additional equipment and replace existing equipment.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Engineering assessment to determine feasibility of each site improvement throughout County	County	In progress	Engineering assessments have been done throughout the County; however, there is still a need to conduct additional engineering assessments in the County.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Improve dams to prevent flooding causing roads to wash out.	County	In progress	Dam improvements have been made throughout the County; however, there is a need to continue the improvements in other areas of the County.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below
Improve identified sites where slope stability is subject to land subsidence and where excavation or planting could mitigate future damage.	County	In progress	The County has stabilized slopes in parts of the county; however, additional work needs to be done.	Include in 2018 HMP	This action pertains to several identified in Table 9.1-9 below



Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

Washington County has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

- The County and municipalities have implemented, or sought to implement through efforts to secure available funding resources, mitigation actions to protect critical facilities and infrastructure throughout the planning area, including:
 - New span bridge on CR46 in Town of Fort Edward
 - Village of Granville - Phase I of Church Street Bridge Rehabilitation, River Valley Drive Pump Station Flood Mitigation, Wellfield Berm Repairs, Sanitary Collection System Inflow and Infiltration Mitigation Project
 - Bridge deck repair/upgrade on CR113 in Town of Easton.
 - Batten Kill River Stabilization Project in Town of Jackson
 - Washington County Sewer District #11 Backup Power System
 - Pike Brook Road bridge replacement in Town of Dresden, damaged during Hurricane Irene

Proposed Hazard Mitigation Initiatives for the Plan Update

The County participated in a mitigation action workshop in September 2016 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

Table 9.1-9 summarizes the comprehensive-range of specific mitigation initiatives the County would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 – Mitigation Strategy, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.1-10 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
Department of Public Safety											
WC-1	Become a StormReady county - neither the County nor any communities therein participate in StormReady.	New and Existing	Severe Storms, Severe Winter Storms	1, 2, 5	Public Safety	Medium	Low	County and Local budgets	Short Term	Medium	EAP
WC-2	County and Local Mitigation Capability Building: Arrange/facilitate and/or promote regional workshops, trainings and continuing education (prepared and offered by others) in the following areas: <ul style="list-style-type: none"> Floodplain Management and the Certified Floodplain Managers (CFM) certification Community Rating System (CRS) – Limited to promoting workshops or training opportunities offered by others as available Benefit-Cost Analysis (BCA) Substantial Damage Estimating (SDE) NFIP Elevation Certificates (EC) 										
	See Above	N/A	All hazards	All	County Public Safety; as supported by NYS DHSES, FEMA and ISO; with participation of all municipalities and other County department and agencies	High – Improved county and local floodplain management, mitigation and recovery capabilities	Medium	County and local Budgets (generally limited to staff time)	Short Term	Medium	EAP, EM*
WC-3	Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities through the following activities: <ul style="list-style-type: none"> Update and adopt the local Flood Damage Protection Ordinance (FDPO) to conform to latest regulations and guidance (see http://www.dec.ny.gov/lands/39341.html for guidance on model ordinances), including the following: <ul style="list-style-type: none"> Proper identification of “Administrator” Proper reference to current regulatory mapping and any other “best available data” being used Higher Regulatory Standards (per local interest) Additional Freeboard Cumulative Substantial Damages/Improvements Assure that the designated floodplain administrator has adequate support and training to fulfill their responsibilities. It is noted that general floodplain management training is made available through the following sources – <ul style="list-style-type: none"> NYSDEC Floodplain Management Section - http://www.dec.ny.gov/lands/101275.html 										





Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
	o New York State Floodplain and Stormwater Managers Association (NYSFSMA) at http://nyfloods.org/										
	See above.	New and Existing	Flood	All	County through Public Safety with assistance from NYS DHSES, NYSDEC and FEMA	Medium	Low	County Budget and Staff Time	Short Term	Medium	LPR
WC-4	The County shall review and incorporate the latest information on climate change projections while considering planning, engineering and undertaking mitigation actions and other projects throughout the County. Specifically, the County shall refer to the latest ClimAID “Responding to Climate Change in New York State” reports (2011, and 2014 Supplement) developed by the New York State Energy Research and Development Authority (NYSERDA), as well as other state and nationally-recognized, peer-reviewed, science-based sources of climate projection data and information, as available.										
	See Above	N/A	All hazards including climate change	All	All County departments and agencies	High	Low	County Budgets	Short	High	LPR
WC-5	The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program through the following activities: <ul style="list-style-type: none"> • Include information on the CSC program, benefits and participation requirements and activities on the County website. See: http://www.dec.ny.gov/energy/76483.html • Inform County and municipal representatives of Climate Smart Community Webinar offerings, and other related informational events offered through the Program. See: http://www.dec.ny.gov/energy/76910.html 										
	See Above	N/A	All hazards including climate change	All	All County departments and agencies; municipalities	High	Low	County Budgets	Short	Medium	LPR
WC-6	Floodprone Critical Facilities in Washington County –										
	<ol style="list-style-type: none"> 1. As digitized flood maps become available for Washington County, identify Critical Facilities at which the structures or the parcel are located wholly or partially within the 100-year floodplain. The County will compile the names, types, locations of facilities and their relationships to the flood zone(s). 2. Once the Critical Facilities are identified, identify appropriate level of protection (500-year event or worst-case scenario) for the facilities. Indicate whether there is no history of flooding and conditions exist where future damage is unlikely or if there is a history of flooding or future damage is likely based on existing conditions. For those facilities that have been damaged previously, identify any known protection measures already in place. <ol style="list-style-type: none"> a. If protective measures are in place, evaluate potential long-term mitigation actions to eliminate the need for response b. If no protective measures are in place, assemble a planning team to collaborate on mitigation alternatives to reduce or eliminate the vulnerability to flooding. The Critical Facilities that fall into this category will be protected to a 500-year flood event. 3. Timeframe for this action is as follows (dependent on when digitized flood maps are completed): <ol style="list-style-type: none"> a. 6 months: convene a meeting of communities and stakeholders for critical facilities in the floodplain to assess response or mitigation measures; develop a prioritized list based on extent of past damages, the relative isolation of the facility, the number of residents’ dependent on it, etc. b. 12 months: meet and then conduct site visits with NYS DHSES mitigation staff using the prioritized list; c. 24 months: prepare complete on-site information for the stakeholders; who is responsible for coordinating the action; what is needed for each facility during a flooding event; who is contacted to obtain the needed supplies d. 24 months: complete worksheets for all vulnerable critical infrastructure in Washington County 										





Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
	See Above	New and Existing	Flood	All	County Public Safety with support from NYS DHSES	High	Medium	County Budget	Short Term (see above)	High	LPR, EAP
Department of Planning and Code Enforcement											
	As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.										
WC-7	See above.	N/A	Flood; Severe Storm	1, 2	County Planning; working with County Public Safety	Medium	Low	Department Budget; Staff time	Short Term – as information becomes available	Medium	LPR, EAP
	Encourage local municipalities to review their codes (specifically municipal zoning and emergency codes), and provide support for such reviews and amendments at the request of local governments. This review should help to ensure that all jurisdictions have flood damage prevention codes that appropriately regulate activities in flood hazard areas. It is noted that the County does not have any Land Use Codes and cannot require local municipalities to adopt or modify their local codes. The County can and will encourage local municipalities to review their codes to determine if there are any mitigations measures that can be included in any amendments.										
WC-8	See above.	N/A	All Hazards	All	County Planning and Code Enforcement; working with municipalities	Medium	Low	Department Budget	Ongoing	High	LPR
County DPW											
WC-9 (previous action)	Stabilize embankment above County Route 6 in the Town of Dresden. Sandy soil continually slump, blocking drainage ditch and roadway, and divert drainage into roadway causing erosion and icing.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP
WC-10 (previous action)	Reconstruct Mill Pond in the Town of Dresden outlet with precise drop-inlet with ‘beehive’ style grate to deter beaver activity and extend outlet pipe and remove old alignment. Existing six-foot culvert is blocked by a beaver dam. Pond water currently pipes through road embankment and pools in an area contained by a former, abandoned road alignment before draining through a failing box culvert under the old alignment.										
	See above	Existing	Severe	1	County DPW	High	High	Department Budget,	Short Term	High	SIP





Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
			Storm, Flood, Severe Winter Storm		working with the municipality			Municipal Budget, NYSDEC Environmental Facilities grants, NYSDEC Invasive Species Rapid Response and Control Grant Program			
	Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts. Beaver dams in this area have caused washouts and erosion damage to roadways and drainage systems.										
WC-11 (previous action)	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants, NYSDEC Invasive Species Rapid Response and Control Grant Program	Short Term	High	SIP
WC-12	Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP
WC-13	Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP





Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
WC-14 (previous action)	Stabilize slope at CR-46 in the Town of Fort Edward. There have been habitual slope stability issues that compromise the south bound lanes at this location each year.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	High	SIP
WC-15 (previous action)	The Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich and are in poor condition. Dams need to be replaced.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMA	Short Term	High	SIP
WC-16	Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, BRIDGE NY	Short Term	High	SIP
WC-17	Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook.	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)	Short Term	Medium	SIP
WC-18 (previous action)	Conduct a hydraulic analysis of the CR-113 area in the Town of Easton (1/4 mile south of Kidney Creek) to mitigate frequency and severity of flood damage. Use findings of the analysis to determine ways to mitigate flood events and begin project within one year of analysis.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)	Short Term	High	SIP





Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
WC-19 (previous action)	Conduct an engineering study along CR-54 in the Town of Easton to determine if slope stabilization of the existing highway alignment or realigning the highway is the most economical solution. Habitual slope stability issues compromise the west bound lanes at this location annually. Once study is complete, identify best solutions for the area and begin project within one year.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP
WC-20	Replace the culvert pipes on CR-68 in the Town of White Creek	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP
WC-21	Wellfield Berm Repairs (Village of Granville) - Proposed improvement/repairs to the berm will at minimum include: 1) Repairs to the portions of the berm damaged by hurricane flood waters including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.										
	See Above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	High	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	High	SIP
WC-22	River Valley Drive Pump Station (Village of Granville) - The proposed project will: 1) Raise the pump station thereby eliminating Inflow and Infiltration (I&I) into the collection system and reducing flooding at the Wastewater Treatment Facility; 2) Raise the control panel thereby eliminating the possibility that the pump station will be rendered inoperable and thus prevent the "backup" of sewage into the upstream portions of the collection system; and 3) Install watertight manhole covers will reduce I&I to the pump station.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	High	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP
WC-23	Sanitary Collection System Inflow and Infiltration (Village of Granville) - This project would entail the following: 1) An Inflow and Infiltration (I&I) evaluation of sanitary sewer flows in a portion of the Village collection system thought to have be the most impacted by I&I. 2) Construction related work such as sewer lining or sewer main/lateral replacement and manhole lining to mitigate significant I&I into the system.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	Medium	High	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants	Short Term	Medium	SIP





Table 9.1-9. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
WC-24	Wastewater Treatment Facility Standby Generator (Village of Granville) - Installation of a standby generator at the wastewater treatment facility will enable the Village to use their existing portable generator at the remote pump station in the Village thereby eliminating potential public health and safety issues in the community.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1, 2, 4	County DPW working with the municipality	High	Medium	Department Budget, Municipal Budget, FEMA HMGP	Short Term	Medium	SIP
WC-25	Foster Brook Sewer Line Project (Town of Dresden) - Proposed improvement/repairs to the berm will at minimum include: 1. Repairs to the portions of the berm damaged by hurricane flood waters including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2. Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	High	Medium	Department Budget, Municipal Budget, FEMA FMA or HMGP	Short Term	Medium	SIP
WC-26 (previous action)	Batten Kill River Stabilization (Town of Jackson) - The proposal is for rock formation and lining the side of the bank with stone to stabilize the bank. The rock formations cause a back current that ultimately fills the area behind the formation with sediment to further enforce the bank.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1	County DPW working with the municipality	High	Medium	Department Budget, Municipal Budget, FEMA FMA or HMGP	Short Term	Medium	SIP
WC-27	WCSD backup power system - provide a back-up generator for the Notre Dame Pump Station and for the Aeration System at the Wastewater Treatment Plant. The backup generators will provide power to these two locations, in the event of an emergency or prolonged power outage.										
	See above	Existing	Severe Storm, Flood, Severe Winter Storm	1, 2, 4	County DPW working with the municipality	Medium	Medium	Department Budget, Municipal Budget, FEMA HMGP or FMA	Short Term	High	SIP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

CAV Community Assistance Visit
 CRS Community Rating System
 DPW Department of Public Works
 FEMA Federal Emergency Management Agency

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
 HMGP Hazard Mitigation Grant Program
 PDM Pre-Disaster Mitigation Grant Program
 RFC Repetitive Flood Claims Grant Program

Timeline:

Short 1 to 5 years
 Long Term 5 years or greater
 OG On-going program
 Short Term Depending on funding





FPA	Floodplain Administrator		(discontinued in 2015)
HMA	Hazard Mitigation Assistance	SRL	Severe Repetitive Loss Grant Program (discontinued in 2015)
N/A	Not applicable		
NFIP	National Flood Insurance Program		
OEM	Office of Emergency Management		

Costs:

Where actual project costs have been reasonably estimated:

- Low < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Where actual project costs cannot reasonably be established at this time:

- Low Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
- Medium Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- High Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

- Low= < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Where numerical project benefits cannot reasonably be established at this time:

- Low Long-term benefits of the project are difficult to quantify in the short term.
- Medium Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
- High Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP) - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities





Table 9.1-10. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action / Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
WC-1	Become a StormReady County	1	1	1	1	0	1	1	0	0	1	1	1	0	0	9	High
WC-2	County and Local Mitigation Capability Building	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
WC-3	Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities	1	1	1	1	0	0	1	0	0	0	0	1	0	0	6	Medium
WC-4	The County shall review and incorporate the latest information on climate change projections while considering planning, engineering and undertaking mitigation actions and other projects throughout the County.	1	1	1	1	1	1	1	1	0	1	1	1	0	0	11	High
WC-5	The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program	1	1	1	1	0	0	1	1	0	1	1	1	0	0	9	High
WC-6	Floodprone Critical Facilities in Washington County	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	High
WC-7	As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.	1	1	1	1	1	1	1	0	0	1	0	0	0	0	8	Medium
WC-8	Encourage local municipalities to review their codes (specifically municipal zoning and emergency codes), and provide support for such reviews and amendments at the request of local governments.	1	1	1	1	0	0	1	1	0	1	1	1	0	0	9	High
WC-9	Stabilize embankment above County Route 6 in the Town of Dresden.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High





Table 9.1-10. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action / Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
WC-10	Reconstruct Mill Pond in the Town of Dresden outlet	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-11	Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-12	Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-13	Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-14	Stabilize slope at CR-46 in the Town of Fort Edward	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-15	The Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich and are in poor condition. Dams need to be replaced.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-16	Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-17	Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook in the Village of Greenwich.	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-18	Conduct a hydraulic analysis of the CR-113 area in the Town of Easton	1	1	1	1	1	1	0	0	1	1	1	0	0	0	9	High
WC-19	Conduct an engineering study along CR-54 in the Town of Easton	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-20	Replace the culvert pipes on	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium





Table 9.1-10. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action / Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	CR-68 in the Town of White Creek																
WC-21	Wellfield Berm Repairs (Village of Granville)	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
WC-22	River Valley Drive Pump Station (Village of Granville)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-23	Sanitary Collection System Inflow and Infiltration (Village of Granville)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-24	Wastewater Treatment Facility Standby Generator (Village of Granville)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-25	Foster Brook Sewer Line Project (Town of Dresden)	1	1	1	1	1	0	0	0	1	1	1	0	0	0	8	Medium
WC-26	Batten Kill River Stabilization (Town of Jackson)	1	1	1	1	1	1	0	1	0	1	1	0	0	0	9	High
WC-27	WCSD backup power system	1	1	1	1	1	0	0	0	1	1	1	0	1	0	9	High

Note: Refer to Section 6 – Mitigation Strategy which contains the guidance on conducting the prioritization of mitigation actions.



9.1.7 Future Needs to Better Understand Risk/Vulnerability

None at this time.

9.1.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the County that illustrate the probable areas impacted within the County. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the County has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.1.9 Additional Comments

None at this time.



Action Number:

WC-1

Mitigation Action Name:

Become a StormReady County

Assessing the Risk	
Hazard(s) addressed:	Severe Storms, Severe Winter Storms
Specific problem being mitigated:	Neither the County nor any communities therein participate in StormReady. The County and communities may not be fully prepared to handle all types of severe weather events, either due to lack of staff, funding, or knowledge.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Require communities to become StormReady – limited staff and funding in each municipality to do so.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Join the StormReady Program, and promote the program to municipalities as well. This will allow the county and its municipalities to be better prepared to save lives from the onslaught of severe weather through advanced planning, education, and awareness.
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	1, 2, 5
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Public Safety working with municipalities, as needed
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	County and Local budgets
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: WC-1
 Mitigation Action Name: Become a StormReady County

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide guidance to protect residents from severe weather events
Property Protection	1	Provide guidance to protect public and private properties from severe weather events
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	1	The County has the authority to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storms, Severe Winter Storms
Timeline	1	Short
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	



Action Number:

WC-2

Mitigation Action Name:

County and Local Mitigation Capability Building

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Regional workshops, trainings, and continuing education opportunities are not currently held in the county, which leads to lack of info sharing in the county and municipalities.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hire outside consultants to conduct training – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Arrange/facilitate and/or promote regional workshops, trainings and continuing education (prepared and offered by others) in the following areas: <ul style="list-style-type: none"> Floodplain Management and the Certified Floodplain Managers (CFM) certification. Community Rating System (CRS) – Limited to promoting workshops or training opportunities offered by others, as available. Benefit-Cost Analysis (BCA). Substantial Damage Estimating (SDE). NFIP Elevation Certificates (EC).
Mitigation Action Type	Education and Awareness Programs (EAP)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High – Improved county and local floodplain management, mitigation, and recovery capabilities
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Public Safety; as supported by NYS DHSES, FEMA and ISO; with participation of all municipalities and other County department and agencies
Local Planning Mechanism	Hazard Mitigation
Potential Funding Sources	County and local Budgets (generally limited to staff time)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-2
County and Local Mitigation Capability Building

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All hazards
Timeline	1	Ongoing – as programs are available
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-3

Mitigation Action Name:

Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Current floodplain management capabilities for municipalities may not be sufficient to provide necessary support to the community. Additionally, municipalities are unaware of the flood damage prevention ordinance and/or who is the assigned floodplain administrator.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. County take on floodplain management capabilities – not something the county will do soon.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Support to be provide through the following activities: <ul style="list-style-type: none"> • Update and adopt the local Flood Damage Protection Ordinance (FDPO) to conform to latest regulations and guidance (see model ordinance guidance at http://www.dec.ny.gov/lands/39341.html), including the following: <ul style="list-style-type: none"> ○ Proper identification of “Administrator.” ○ Proper reference to current regulatory mapping and any other “best available data” being used. ○ Higher Regulatory Standards (per local interest). ○ Additional Freeboard. ○ Cumulative Substantial Damages/Improvements. • Assure that the designated floodplain administrator has adequate support and training to fulfill their responsibilities. General floodplain management training is made available through the following sources: <ul style="list-style-type: none"> ○ NYSDEC Floodplain Management Section at http://www.dec.ny.gov/lands/101275.html. ○ New York State Floodplain and Stormwater Managers Association (NYSFSMA) at http://nyfloods.org/.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	New and Existing
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	County through Public Safety with assistance from NYS DHSES, NYSDEC, and FEMA
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	County Budget and Staff Time
Timeline for Completion	Short; Ongoing



Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-3
 Provide support to municipalities as they work to update and enhance local floodplain management regulatory capabilities

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	0	The County will need to work with the municipalities to implement this action
Multi-Hazard	0	Flood
Timeline	1	Short; Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (H/M/L)	Medium	



Action Number:

WC-4

Mitigation Action Name:

Review and incorporate the latest information on climate change projections.

Assessing the Risk	
Hazard(s) addressed:	All hazards including climate change.
Specific problem being mitigated:	Existing planning and engineering objectives for the County may not consider the full effect of climate change. This can have negative impacts of proposed new development, upgrades to culverts and other stormwater systems, and building codes.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The County shall review and incorporate the latest information on climate change projections while considering planning, engineering, and undertaking mitigation actions and other projects throughout the County. Specifically, the County shall refer to the latest ClimAID “Responding to Climate Change in New York State” reports (2011, and 2014 Supplement) developed by the New York State Energy Research and Development Authority (NYSERDA), as well as other state and nationally-recognized, peer-reviewed, science-based sources of climate projection data and information, as available.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	All County departments and agencies
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	County Budgets
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-4
Review and incorporate the latest information on climate change projections.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	1	County budget and staff time
Environmental	1	
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All hazards including climate change
Timeline	1	Short; Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	11	
Priority (H/M/L)	High	



Action Number:

WC-5

Mitigation Action Name:

The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program.

Assessing the Risk	
Hazard(s) addressed:	All hazards including climate change.
Specific problem being mitigated:	Not every municipality partakes in the NYSDEC Climate Smart Communities program. By not participating, municipalities may not have the knowledge or the capabilities to reduce greenhouse gas emissions or improve climate resilience.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Support will be provided through the following activities: <ul style="list-style-type: none"> • Include information on the CSC program, benefits, and participation requirements and activities on the County website at http://www.dec.ny.gov/energy/76483.html. • Inform County and municipal representatives of Climate Smart Community Webinar offerings and other related informational events offered through the Program at http://www.dec.ny.gov/energy/76910.html.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	High
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	All County departments and agencies; municipalities
Local Planning Mechanism	Hazard Mitigation, Emergency Management
Potential Funding Sources	County Budgets
Timeline for Completion	Short; Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-5
 The County shall promote both County and municipal participation in the NYSDEC Climate Smart Communities (CSC) program.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities and NYSDEC to implement this action
Fiscal	1	County budget and staff time
Environmental	1	
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All hazards including climate change
Timeline	1	Short; Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	Medium	



Action Number:

WC-6

Mitigation Action Name:

Floodprone Critical Facilities in Washington County.

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Due to insufficient floodplain data, the exposure of critical facilities are unknown and facilities may be susceptible to flooding events. The available FIRM maps do not depict the 500-year floodplain, which does not support an analysis of critical facilities in the flood hazard area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Use the estimated 500-foot buffer mapped during the update of the HMP – not accurate and may or may not show all critical facilities in the floodplain.
Action/Project Intended for Implementation	
Description of Selected Action/Project	<p>Action activities to include:</p> <ol style="list-style-type: none"> 1. As digitized flood maps become available for Washington County, identify Critical Facilities at which the structures or the parcel are located wholly or partially within the 100-year floodplain. The County will compile the names, types, locations of facilities and their relationships to the flood zone(s). 2. Once the County identifies Critical Facilities, identify appropriate level of protection for the facilities. Indicate whether there is no history of flooding and conditions exist where future damage is unlikely or if there is a history of flooding or future damage is likely based on existing conditions. For those facilities that have been damaged previously, identify any known protection measures already in place. <ol style="list-style-type: none"> a. If protective measures are in place, evaluate potential long-term mitigation actions to eliminate the need for response. b. If no protective measures are in place, assemble a planning team to collaborate on mitigation alternatives to reduce or eliminate the vulnerability to flooding. The Critical Facilities that fall into this category will be protected to a 500-year flood event. 3. Timeframe for this action is as follows (dependent on when digitized flood maps are completed): <ol style="list-style-type: none"> a. 6 months: convene a meeting of communities and stakeholders for critical facilities in the floodplain to assess response or mitigation measures; develop a prioritized list based on extent of past damages, the relative isolation of the facility, and the number of residents' dependent on it. b. 12 months: meet and then conduct site visits with NYS DHSES mitigation staff using the prioritized list. c. 24 months: prepare complete on-site information for the stakeholders; establish who is responsible for coordinating the action; determine what is needed for each facility during a flooding event; identify who is contacted to obtain the needed supplies. d. 24 months: complete worksheets for all vulnerable critical infrastructure in Washington County.
Mitigation Action Type	Local Plans and Regulations (LPR), Education and Awareness Programs (EAP)
Goals Met	All
Applies to existing and or new development, or not applicable	New and Existing





Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Public Safety with support from NYS DHSES
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	County Budget
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: WC-6
 Mitigation Action Name: Floodprone Critical Facilities in Washington County.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	
Fiscal	1	Use county budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Relocating those critical facilities in the floodplain will benefit all residents
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Flood
Timeline	1	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (H/M/L)	High	



Action Number:

WC-7

Mitigation Action Name:

As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.

Assessing the Risk	
Hazard(s) addressed:	Flood; Severe Storm
Specific problem being mitigated:	Public knowledge of the flooding hazard is lacking due to insufficient flood data.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Provide information to the public regarding flood prone areas once County-wide flood data is made available.
Mitigation Action Type	Local Plans and Regulations (LPR), Education and Awareness Programs (EAP)
Goals Met	1, 2
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	Medium
Plan for Implementation	
Responsible Organization	County Planning; working with County Public Safety
Local Planning Mechanism	Hazard Mitigation, Floodplain Management
Potential Funding Sources	Department Budget; Staff time
Timeline for Completion	Short Term - As information is made available
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-7

As new NFIP flood data and mapping is made available, ensure County website has all current and updated information on flood prone areas.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	1	County budget and staff time
Environmental	0	No known negative environmental impacts are related to this action
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	0	Flood; Severe Storm
Timeline	0	As information is made available
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-8

Mitigation Action Name:

Encourage local municipalities to review their codes.

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Existing codes do not encourage sufficient protection from hazard events. Additionally, the county does not have any land use codes and cannot require local municipalities to adopt or modify their local codes.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. County requires changes – the county does not have land use codes and cannot require adoption or modification.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Encourage local municipalities to review their codes (specifically municipal zoning and emergency codes), and provide support for such reviews and amendments at the request of local governments. This review should help to ensure that all jurisdictions have flood damage prevention codes that appropriately regulate activities in flood hazard areas. It is noted that the County does not have any Land Use Codes and cannot require local municipalities to adopt or modify their local codes. The County can and will encourage local municipalities to review their codes to determine if there are any mitigations measures that can be included in any amendments.
Mitigation Action Type	Local Plans and Regulations (LPR)
Goals Met	All
Applies to existing and or new development, or not applicable	N/A
Benefits (losses avoided)	Medium
Estimated Cost	Low
Priority*	High
Plan for Implementation	
Responsible Organization	County Planning and Code Enforcement; working with municipalities
Local Planning Mechanism	Hazard Mitigation, Code Enforcement
Potential Funding Sources	Department Budget
Timeline for Completion	Ongoing
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-8
Encourage local municipalities to review their codes.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	0	
Legal	0	The County will need to work with the municipalities to implement this action
Fiscal	1	County budget and staff time
Environmental	1	Enhance codes to provide protection to the natural environment, where applicable
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	All Hazards
Timeline	1	Ongoing
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-9

Mitigation Action Name:

Stabilize embankment above County Route 6 in the Town of Dresden.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Sandy soil continually slumps, blocks the drainage ditch and roadway, and diverts drainage into roadway, causing erosion, flooding, and icing (during colder months).
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Elevate roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stabilize embankment above County Route 6 in the Town of Dresden. Sandy soil continually slumps, blocks the drainage ditch and roadway, and diverts drainage into the roadway, causing erosion and icing. Ensure the embankment is capable of handling existing and future stormwater conditions.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-9
Stabilize embankment above County Route 6 in the Town of Dresden.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-10

Mitigation Action Name:

Reconstruct Mill Pond in the Town of Dresden outlet.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing six-foot culvert is blocked by a beaver dam. Pond water currently discharges through pipes through a road embankment and pools in an area contained by a former, abandoned road alignment before draining through a failing box culvert under the old alignment.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Construct the new outlet with precise drop-inlet with 'beehive' style grate to deter beaver activity and extend outlet pipe and remove old alignment.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium to High
Estimated Cost	Medium to High
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, grant funding where available
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-10
Reconstruct Mill Pond in the Town of Dresden outlet.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-11

Mitigation Action Name:

Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Beaver dams in this area have caused washouts and erosion damage to roadways and drainage systems.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Removal of beaver dams – need to obtain permits from NYSDEC; not a permanent solution.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Roadside ditches to be stabilized using crushed stone; increase culvert size along roadway.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants, NYSDEC Invasive Species Rapid Response and Control Grant Program
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-11
 Armor roadside ditches along CR-25 in the Town of Granville with crushed stone and increase the waterway opening of existing culverts.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-12

Mitigation Action Name:

Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing culvert provides insufficient stormwater management.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Re-design roadway to minimize overtopping/flooding of roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Increase the stormwater capacity of the existing culvert. A larger culvert will help reduce or prevent flooding and damages. It will also reduce downstream flood peaks and provide flood protection within the drainage system.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-12
 Increase the waterway opening of the culvert under State Route 22 and CR-26 in the Town of Granville.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the State and the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-13

Mitigation Action Name:

Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing conditions provide insufficient stormwater management.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace the existing pipe-arch and replace system to increase the stormwater capacity.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-13
 Replace pipe-arch with concrete box culvert or small bridge at CR-47 in the Town of Argyle; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-14

Mitigation Action Name:

Stabilize slope at CR-46 in the Town of Fort Edward.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Habitual slope stability issues compromise the south bound lanes at this location annually.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hydroseed slope – short-term solution but might not prevent damage.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Stabilize slope to prevent annually road closures along south bound lane.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-14
Stabilize slope at CR-46 in the Town of Fort Edward.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-15

Mitigation Action Name:

Replace the Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Dams are in poor condition and susceptible to dam failure. If the dam were to fail, surrounding areas will be flooded and damaged.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Increase the amount of precipitation that infiltrates the soil – this will decrease the amount that runs off into the lake; however, it will take time to grow vegetation and the dam could still fail.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace existing dams under CR-49 to prevent potential dam failure.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMA
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-15
 Replace the Cossayuna Lake outlet dams are located under CR-49 in the Town of Greenwich

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the NYSDEC and the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-16

Mitigation Action Name:

Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Existing culvert provides insufficient stormwater management. During periods of heavy rain, water overtops the roadway, leading to flooding and road closures. This prevents emergency personnel from accessing this part of the town and county.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Elevate roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Upgrade the existing culvert to increase stormwater capacity.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, BRIDGE NY
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-16
Increase culvert size in the area of CR-30 and Warwick Road in the Town of Hebron.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-17

Mitigation Action Name:

Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook in the Village of Greenwich.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The water main of the Village of Greenwich runs through the bridge wingwalls and directly on the creek bottom where CR-74 crosses Fly Creek and Marshall Brook. This compromises the integrity of the two county bridges. Failure of the pipe would compromise the only supply to the storage tank that supports the village.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Replace entire system – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-17
 Install new water mains under the creek bed where CR-74 crosses Fly Creek and Marshall Brook in the Village of Greenwich.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-18

Mitigation Action Name:

Conduct a hydraulic analysis of the CR-113 area in the Town of Easton.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Due to lack of County-wide floodplain data, there is little understanding the frequency and severity of flooding in the area of CR-113 in the Town of Easton. This area has been impacted by floods and damaged in the past.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Use current FEMA maps for county – the maps do not show the 500-year floodplain and may contain outdated information.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct a hydraulic analysis of the CR-113 area in the Town of Easton (1/4 mile south of Kidney Creek) to mitigate frequency and severity of flood damage. Use findings of the analysis to determine ways to mitigate flood events and begin project within one year of analysis.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMA grants (HMGP, FMA)
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-18
Conduct a hydraulic analysis of the CR-113 area in the Town of Easton.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-19

Mitigation Action Name:

Conduct an engineering study along CR-54 in the Town of Easton.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Habitual slope stability issues compromise the west bound lanes at this location annually.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Routine maintenance (hydroseed, install riprap, etc.) – short-term solution and may not help with the stability.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Conduct an engineering study along CR-54 in the Town of Easton to determine if slope stabilization of the existing highway alignment or realigning the highway is the most economical solution. Once study is complete, identify best solutions for the area and begin project within one year.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-19
Conduct an engineering study along CR-54 in the Town of Easton.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-20

Mitigation Action Name:

Replace the culvert pipes on CR-68 in the Town of White Creek.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The openings of the CR-68 twin culverts in the Town of White Creek easily trap debris which obstructs the culverts and topping the road. This leads to flooded roadways which can cause road closures and prevents emergency personnel from accessing areas of the town.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Elevate roadway – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace the culvert pipe with concrete box culvert or small bridge; armor banks and shoulders with crushed stone to mitigate damage to road if overtopped in the future.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-20
Replace the culvert pipes on CR-68 in the Town of White Creek.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-21

Mitigation Action Name:

Wellfield Berm Repairs (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The Village of Granville's only water source is a shallow gravel aquifer located adjacent to the Mettawee River on the eastern side of the Village. Prior to Hurricane Irene, water was pumped out of this aquifer via a well manifold system, treated, and distributed to the community. According to Village Operations Personnel, this water supply infrastructure was installed in the aquifer in the 1950's. Part of this project also included construction of a 15' high, 450' long earthen berm to protect the well field from eroding during flood events such as was seen during Hurricane Irene. There are no records as to the origin or purpose of the berm, but based on obvious field observations, the berm was installed to act as a barrier between the Mettawee River and the well field to prevent scouring, erosion and damage to the well field and water system infrastructure. In early 2011 the Village of Granville installed new wellheads (costing \$500,000+) in the existing aquifer to replace those well heads that were installed in the 1950's. During Hurricane Irene the berm sustained damage in the form of scouring and undermining. Photos of this damage can be provided upon request. The Village requested assistance from FEMA for the repair of this berm post hurricane Irene but were unable to acquire funding to repair the berm. It is the opinion of the Village of Granville that the well field berm is a critical part of the Village of Granville's water system infrastructure and is in need of repair as a result of Hurricane Irene. Without these repairs, the berm will continue erode to during future flood events which will compromise the Villages water supply aquifer and newly installed water supply infrastructure. Repairs to the berm will consist of the placement of fill on the riverside and well field side of the berm to reestablish it to pre-hurricane conditions. Repairs also will consist of the installation of medium/heavy rip rap on the berm to further reinforce it against future flood events.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Replace berm – costly.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Proposed improvement/repairs to the berm will at minimum include: 1) Repairs to the portions of the berm damaged by hurricane flood waters, including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: WC-21

Mitigation Action Name: Wellfield Berm Repairs (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	1	Residents living in the area of the project will benefit from this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-22

Mitigation Action Name:

River Valley Drive Pump Station (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The River Valley Drive pump station is located along River Valley Drive in the Village of Granville. The pump station conveys the wastewater flows from a significant portion of the Village to the Village Wastewater Treatment Facility. During Hurricane Irene the wet well component of the pump station was submerged by flood waters and the control panel for the pump station was only about 6 inches above the water. Because the control panel was not damaged during the flood event, the pump station continued to operate. Although there was no damage, the pump station was submerged and as a result took on significant amounts of Inflow and Infiltration (I&I). This high flow was then conveyed to the Village wastewater treatment plant by the pump station, which contributed to the overflowing of the plant as a result of general collection system I&I. During the flood event the treatment facility received approximately 3 times its rated peak capacity, thus many of the processes at the plant were overwhelmed or overflowed. To compound matters at the wastewater treatment plant, several hours after the high levels of I&I flooded the plant, the nearby Mettawee River flooded the lower portion of the plant causing several hundred thousand dollars in damage to the facility that was repaired through Village insurance funds and FEMA funding. The Village wants to raise the overall height of the pump station by approximately 5 feet to put it above the recorded flood level. Concurrently, the Village would like to raise the control panel for the pump station higher to avoid a potential flooding in the future. In addition to this action, the Village would like to place approximately 12 new watertight manhole frames and covers along the collection sewer leading up to the pump station. These manhole covers were submerged during hurricane Irene and thus contributed to the I&I issue at the wastewater treatment facility.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rebuild entire sewer system – costly and timely.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The proposed project will: 1) Raise the pump station, thereby eliminating I&I into the collection system and reducing flooding at the Wastewater Treatment Facility. 2) Raise the control panel thereby eliminating the possibility that the pump station will be rendered inoperable and thus prevent the "backup" of sewage into the upstream portions of the collection system. 3) Install watertight manhole covers to reduce I&I to the pump station.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:





Action Number: WC-22

Mitigation Action Name: River Valley Drive Pump Station (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this pump station will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-23

Mitigation Action Name:

Sanitary Collection System Inflow and Infiltration (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	<p>During Hurricane Irene, high flows from the Village sanitary sewer collection system overwhelmed the Village of Granville Wastewater Treatment Facility. These flows, most likely the result of groundwater and surface water inflow and infiltration into the collection system, overloaded and flooded the facility resulting in damage to various treatment processes and components. Flooding of the facility was later compounded by flood waters from the Mettawee River which flooded the low-lying buildings and process components with approximately 3 feet of water. The Wastewater Treatment Facility suffered more than \$600,000 of damage as a result of Hurricane Irene.</p> <p>The High 30-Day Mean Design Flow for the Wastewater Treatment facility is 1.3 MGD, with the process components having a Peak Hourly Design Capacity of 2.1 MGD. According to the Treatment Plant Facility Plan, the existing partial flume flow meter at the head of the plant has a rated capacity of approximately 2.5 MGD. Although the rated capacity of the facilities influent flow meter is 2.5 MGD, influent flows during the Hurricane were measured in excess of 4.0 MGD. Additionally, based on observations and measurements by the Village Operations Personnel, the flow through the head of the plant may have been upwards of 6.0 MGD during the peak of the storm event. This resulted in the overflowing of the facilities Imhoff tanks with the flood water (and untreated raw sewage) eventually making its way into buildings or directly into the Mettawee River. It should be noted that upon review of the sanitary collection system after the Irene, there were no significant observable breaches to the sanitary collection system that would have cause the overwhelming flows at the plant.</p> <p>A desktop evaluation of the Village Inflow and Infiltration (I&I) issues was conducted by Lamont Engineers. This study can be provided upon request if further information is needed to further describe the Villages existing system. It should be noted that one of the outcomes of this study indicated that on average there is 28% more wastewater flow treated at the wastewater plan than water being produced at the Village Water treatment facility. Significant events, such as Hurricane Irene, would only have compounded this figure.</p>
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rebuild entire sewer system – costly and timely.
Action/Project Intended for Implementation	
Description of Selected Action/Project	<p>This project would entail the following: 1) An I&I evaluation of sanitary sewer flows in a portion of the Village collection system thought to have be the most impacted by I&I. 2) Construction related work, such as sewer lining or sewer main/lateral replacement and manhole lining, to mitigate significant I&I into the system.</p> <p>Although the Village has undertaken several I&I projects over the history of its sanitary collection system, this lining work was conducted 20+ years ago and a significant amount of the collection piping may need to be lined. A comprehensive study of the collection system is necessary to determine the most severe areas of I&I within the collection system and to pinpoint the areas where work can be conducted to reduce the wet weather I&I in the system to a manageable level concurrent with project costs. Pending the outcome of this study, I&I mitigation measures may include the following:</p> <ol style="list-style-type: none"> 1) Lining and/or replacements of collection sewers. 2) Lining and/or replacement of residential sewer laterals. 3) Lining and/or replacement of sanitary sewer manholes. 4) Installation of water-tight manhole frames and covers in flood prone areas.



	Based on funding provided by FEMA post Irene, mitigation of the some of the facilities at the Wastewater Treatment Facility should prevent flooding of certain facilities by the Mettawee River. The FEMA funding did not address the I&I issues with the sanitary collection system that flooded the plant, which could happen again during a significant storm event.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, NYSDEC Environmental Facilities grants
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:

WC-23

Mitigation Action Name:

Sanitary Collection System Inflow and Infiltration (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-24

Mitigation Action Name:

Wastewater Treatment Facility Standby Generator (Village of Granville).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The Village of Granville Wastewater Treatment Facility is a 2.1 MGD wastewater treatment facility in eastern Washington County. The treatment facility does not currently have a standby/backup power source. In the event of a power failure Village Operations, personnel currently use a portable generator to power the critical systems at the facility. This generator is also used to power a sanitary collection system pump station in the Village. In the event power is severed to the Village (treatment facility and pump station), Operations staff must either borrow an additional generator from a neighboring community, or rent one to power both the treatment facility and pump station. During Hurricane Irene there were not any generators to rent locally, but luckily for the Village, a neighboring community who had not been impacted by the Hurricane was able to lend them one so that the pump station and treatment facility could both continue to operate. Had the Village not been able to borrow this generator, the treatment facility or pump station would have been left inoperable thus creating a public health and safety issue for the community.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Purchase larger portable generator – not suitable for long-term power outages.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Installation of a standby generator at the wastewater treatment facility will enable the Village to use their existing portable generator at the remote pump station in the Village thereby eliminating potential public health and safety issues in the community. A standby generator at the wastewater treatment facility will not only protect the Village during future hurricane/flood events, but also will provide a reliable, automatic backup power source for the wastewater facility during significant storm events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA HMGP
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: WC-24

Mitigation Action Name: Wastewater Treatment Facility Standby Generator (Village of Granville).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County may need authorization from the facility operator to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-26

Mitigation Action Name:

Foster Brook Sewer Line Project (Town of Dresden).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Two sewer lines run over Foster Brook. During Tropical Storm Irene material washed down the brook and was caught behind the I-beam that holds the sewer line above the stream, causing the stream to back up and jump its banks and flooding nearby homes and yards. The stream flow was only inches from impacting the sewer line itself, potentially spillage sewage into the stream and Lake George which is a AA Special water body and drinking water source. A sewer spill would have health impacts on the drinking water supply for the hamlet of Huletts Landing and possibly other municipalities on other parts of the lake.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Rebuild berm – costly and can be long-term project.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Proposed improvement/repairs to the berm will at minimum include: 1) Repairs to the portions of the berm damaged by hurricane flood waters including the placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA FMA or HMGP
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-25
Foster Brook Sewer Line Project (Town of Dresden).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County will need to work with the municipality to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (H/M/L)	Medium	



Action Number:

WC-26

Mitigation Action Name:

Batten Kill River Stabilization (Town of Jackson).

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	Two sewer lines that run over Foster Brook. During Tropical Storm Irene material washed down the brook and was caught behind the I-beam that holds the sewer line above the stream. This caused the stream to back up and jump its banks flooding nearby homes and yards in the area. The stream flow was only inches from impacting the sewer line itself potentially spillage sewage into the stream and Lake George which is a AA Special water body and drinking water source. A sewer spill would have health impacts on the drinking water supply for the hamlet of Huletts Landing and possibly municipalities on other parts of the lake.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Hydroseed area – short-term fix that may not prevent erosion and scouring.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Proposed improvement/repairs to the berm will at minimum include: 1)Repairs to the portions of the berm damaged by hurricane flood waters, including placement of fill on the river side and well field side of the berm to reestablish it to pre-hurricane conditions. 2) Installation of medium/heavy rip-rap on the river side of the berm to reinforce the berm and prevent limit future scouring during flood events.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement, Floodplain Management
Potential Funding Sources	Department Budget, Municipal Budget, FEMA FMA or HMGP
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number:
Mitigation Action Name:

WC-26
Batten Kill River Stabilization (Town of Jackson).

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	1	The County has the authority to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	1	Project will comply with municipal and county environmental regulations
Social	0	No negative social impacts are related to this action
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	



Action Number:

WC-27

Mitigation Action Name:

WCSD backup power system.

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Flood, Severe Winter Storm
Specific problem being mitigated:	The State of New York has recently experienced natural disasters, such as Superstorm Sandy and Hurricane Irene, with increasing severity. The Washington County Sewer District #2, located in Washington County on the Hudson River, is no exception. Proper disposal of sewage is essential for maintenance of health and sanitation, as a power outage renders the portions of the WCSD#2's collection system pumps unable to transport sewage from homes to the treatment facility. A prolonged power outage is harmful to residents especially in the midst of a natural disaster, representing a health hazard to residents through the discharge of untreated or inadequately treated wastewater. As sewage is known to carry a number of disease causing microbes, exposure to sewage is a health hazard, and particularly dangerous to people whose immune defenses may be lower than normal. Per "Recommended Standards for Water Works 2012 Edition (10 State Standards)", it is required for all pump stations to be equipped with a backup generator for emergency situations. The loss of power prevents the Notre Dame Pump Station from conveying untreated wastewater to the treatment plant and causing a continuous overflow of untreated sewage through the Combined Sewer Overflow at this location to Bond Creek. In addition to not having a generator at the pump station, the aeration system at the treatment plant is not connected to the Standby or Backup Power System, and the ability to connect it is limited as the existing generator is not large enough to provide power to the aeration system. This prevents the treatment plants ability to fully treat wastewater and meet effluent permit limits potentially discharging nutrient laden wastewater to the Hudson River, reducing water quality and thereby affecting other communities along the Hudson River.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action - Current problem persists. Purchase portable generator – not suitable for long-term power outages.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The proposed project is to provide a back-up generator for the Notre Dame Pump Station and for the Aeration System at the Wastewater Treatment Plant. The backup generators will provide power to these two locations in the event of an emergency or prolonged power outage. The pumps station and the treatment plant will then be operating in accordance with the 10 State Standards, and most importantly, in the event of an outage, residents will not be endangered by unsanitary living conditions caused by backed-up, overflowing, or inadequately treated sewage. Providing these locations with standby or backup power will reduce the number of events and volume untreated wastewaters discharged thereby ensuring citizens' safety and help offset financial burdens associated with loss of power when one of these events is paired with a prolonged power outage. Providing the sewer district with generators is an important step towards natural disaster mitigation.
Mitigation Action Type	Structure and Infrastructure Project (SIP)
Goals Met	1, 2, 4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium



Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible Organization	County DPW working with the municipality
Local Planning Mechanism	Hazard Mitigation, Capital Improvement
Potential Funding Sources	Department Budget, Municipal Budget, grant funding where available
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: WC-27
 Mitigation Action Name: WCSD backup power system.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The costs to implement this project correspond with the benefits achieved
Technical	1	
Political	1	
Legal	0	The County may need authorization from the facility operator to implement this action
Fiscal	0	Need to seek funding to implement this action
Environmental	0	No known negative environmental impacts are related to this action
Social	1	Residents who are serviced by this system will benefit
Administrative	1	The County has the personnel and administrative capabilities to implement this action
Multi-Hazard	1	Severe Storm, Flood, Severe Winter Storm
Timeline	0	Short Term
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (H/M/L)	High	